

Claims

Claims 1-19 (canceled).

20. (previously presented) An apparatus for fabricating multiple arrays of biopolymers arranged successively in a first direction on a substrate and each having multiple feature sets arranged successively in the first direction within the array, the apparatus comprising:

- (a) a head system with multiple successive sets of dispensers wherein the head system is loaded with biopolymers or biomonomers;
- (b) a transport system to advance the head system in the first direction with respect to a substrate; and
- (c) a processor communicating with the head system and transport system to advance the head system in the first direction over the substrate while dispensing drop sets for each array, from dispenser sets in an order the reverse of that from which the dispenser sets pass over a given location on the substrate as the head system advances in the first direction, with each dispenser set depositing a drop set at a distance ahead of a drop set deposited by a preceding dispenser set which is less than the distance to the successive drop dispenser set which deposits the next drop set, so as to form the arrays.

21. (original) An apparatus according to claim 20 wherein the distance between adjacent feature sets within the arrays is less than the distance between adjacent dispenser sets.

22. (previously presented) An apparatus according to claim 20 wherein the advancing and dispensing comprises:

- (a) while the head system is in one position in the first direction, depositing drop sets from different dispenser sets for feature sets of different positions within multiple arrays;
- (b) advancing the head system in the first direction to a next position; and
- (c) repeating steps (a) and (b) for successive feature sets within the arrays using for each of those feature sets during a cycle, a corresponding dispenser set which deposited at a same feature set position of a previous array in step (a) during a previous cycle.

Claim 23 (canceled).

24. (original) An apparatus according to claim 20 wherein the feature sets are rows of features, the sets of dispensers are rows of dispensers, and the dispensed drop sets are rows of drops.

25. (previously presented) An apparatus according to claim 20 wherein the dispensers are pulse jets.

26. (previously presented) A computer program product comprising a computer readable storage medium having a computer program stored thereon for use with an apparatus for fabricating multiple arrays arranged successively in a first direction on a substrate and each having multiple feature sets arranged successively in the first direction within the array, which apparatus has:

- (i) a head system with multiple successive sets of dispensers wherein the head system is loaded with biopolymers or biomonomers;
  - (ii) a transport system to advance the head system in a first direction with respect to a substrate; and
  - (iii) a processor communicating with the head system and transport system;
- the computer program product, when loaded into the processor, performs the steps of:
- advancing the head system in the first direction over the substrate while dispensing drop sets for each array from dispenser sets in an order the reverse of that from which the dispenser sets pass over a given location on the substrate as the head system advances in the first direction, with each dispenser set depositing a drop set at a distance ahead of a drop set deposited by a preceding dispenser set which is less than the distance to the successive drop dispenser set which deposits the next drop set, so as to form the arrays.

27. (original) A computer program product according to claim 26 wherein the distance between adjacent feature sets within the arrays is less than the distance between adjacent dispenser sets.

28. (previously presented) A computer program product according to claim 26 wherein the advancing and dispensing comprises:

- (a) while the head system is in one position in the first direction, depositing drop sets from different dispenser sets for feature sets of different positions within multiple arrays;
- (b) advancing the head system in the first direction to a next position; and

(c) repeating steps (a) and (b) for successive feature sets within the arrays using for each of those feature sets during a cycle, a corresponding dispenser set which deposited at a same feature set position of a previous array in step (a) during a previous cycle.

29. (previously presented) An apparatus according to claim 20 wherein the head system is loaded with biomonomers.

30. (previously presented) An apparatus according to claim 20 wherein the head system is loaded with polynucleotides, peptides, nucleotides, or amino acids.

31. (previously presented) An apparatus according to claim 20 wherein the head system is loaded with polynucleotides or peptides.

32. (previously presented) An apparatus according to claim 31 wherein the head system is loaded with polynucleotides.

33. (previously presented) An apparatus according to claim 20 wherein the head system is loaded with nucleotides or amino acids.

34. (previously presented) An apparatus according to claim 33 wherein the head system is loaded with nucleotides.

Claim 35 (canceled).